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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,688	05/26/2006	Ryosuke Tsuyuki	MTM-0223	4368

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EXAMINER
PETTITT, JOHN F

ART UNIT	PAPER NUMBER
3744	

MAIL DATE	DELIVERY MODE
10/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,688	TSUYUKI, RYOSUKE	
	Examiner	Art Unit	
	John Pettitt	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2008* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 07/03/2008. Figures 1-3 are acceptable, however, Figures 4 and 7 are unacceptable as the dotted line is not labeled and therefore the figure is ambiguous.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-9** are rejected under 35 U.S.C. 102(b) as being anticipated by Bartlett et al. (US 5,375,424) hereafter Bartlett.

In regard to claim 1, Bartlett teaches a water regeneration method for discharging ice (column 5, lines 64) condensed in a portion (62 or 70 or space near 62 or 70) cooled by a cryogenic refrigerator (40, 44) installed in a case (20) to an outside of the case (exterior to 20), comprising: a temperature increasing step (heater 69 on or purge gas admitted - column 5, lines 5-7, 25-27) for melting the ice; a vaporizing step (rough pumping through valve 84; column 5, line 44-45) for vaporizing water; and a discharging step (pumping down below 1000 microns - step 114, column 6, lines 15-25) for discharging water vapor, wherein the ice, the water, and the water vapor are regenerated (removed from system) in stages such that the ice is melted before the water and the water vapor are regenerated and, after the ice is melted, the water is

regenerated before the water vapor is regenerated, and, after the water is regenerated, then the water vapor is regenerated (as the temperature increasing step, vaporizing step and discharging steps are sequential and as H2O inherently changes from a solid to a liquid and then to a vapor when heated; further note that Bartlett explicitly teaches the phase changing of the H2O - column 5, lines 49-54; column 6, line 10-11).

In regard to claim 2, Bartlett teaches that each of the vaporizing step and the discharging step includes buildup determination (pressure detection determines a buildup of gases built up in system; column 5, lines 45-52).

In regard to claim 3, Bartlett teaches that the temperature increasing step (heater on or purge gas admitted) is a warm-up step for increasing a temperature of the portion (62 or 70 or space near 62 or 70) of the case (20) in which the ice is condensed (column 5, lines 64-65) to a melting point of the ice or higher to melt the ice (column 6, lines 5-11).

In regard to claim 4, Bartlett teaches that the temperature increasing step (heater 69 on or purge gas admitted - column 5, lines 5-7, 25-27) is performed by temperature increase by purge in which a purge gas (column 5, line 29) having a higher temperature than the melting point of the ice is made to flow in the case (20) to return a pressure in the case that is kept at vacuum to an atmospheric pressure (column 6, line 9) and improve thermal conductivity with the outside of the case (column 5, lines 5-8, 25-30) and by temperature increase by a heater (heater 69).

In regard to claim 5, Bartlett teaches that in the vaporizing step, water is vaporized by performing rough evacuation (column 5, lines 44-48, column 6, lines 5-10)

to reduce a pressure of the portion (62 or 70 or space near 62 or 70) in which the water generated from melting of the ice by the temperature increasing step (heater on or purge gas admitted) is accumulated within a range in which the temperature and the pressure of the portion are prevented from reaching a freezing point of the water (column 5, line 65 - column 6, line 4), a buildup determination for determining pressure increase by discharged moisture or a gas when the evacuation is stopped is performed (pressure is detected), and the water vaporization (rough pumping) and the buildup determination (pressure detection) are repeated until the water vanishes away (until pump is emptied - column 6, lines 5-14).

In regard to claim 6, Bartlett teaches that the pressure during the rough evacuation is set to 100 Pa to 200 Pa (1000 microns - column 5, lines 48).

In regard to claim 7, Bartlett teaches that the discharging step (pump down below 1000 microns) is an evacuation step (column 6, lines 15-21) for discharging the water vapor by further reducing the pressure by the rough evacuation at a time when the water is vaporized (all liquid is vaporized) by the vaporizing step (rough pumping), performing a buildup determination to determine the pressure increase by a gas when the evacuation is stopped (pressure detection), and repeating the discharge of the water vapor (pumping at pressure below 1000 microns) and the buildup determination (pressure detection) until the pressure increase is smaller than a value (500 microns) used for the determination (column 6, lines 15-20).

In regard to claim 8, Bartlett teaches that the temperature increasing step (heater 69 on or purge gas admitted) is switched to the vaporizing step at a time when a

temperature of the portion (62 or 70 or space near 62 or 70) of the case (20) in which the ice is condensed reaches the melting point of the ice (interpreted as a time when the ice has changed to pooled liquid - column 4, line 54 and column 6, line 10).

In regard to claim 9, Bartlett teaches that the vaporizing step (heater on and purge gas admitted) is switched to the evacuation step (pumping below 1000 microns) based on the buildup determination (pressure detection) using the discharged moisture or gas when the evacuation is stopped (column 6, lines 15-20 when vaporization is complete).

In regard to claims 10-13, Bartlett teaches a water regeneration apparatus for discharging ice condensed in a portion (62 or 70 or space near 62 or 70) cooled by a cryogenic refrigerator (40, 44) installed in a case (20) to an outside of the case (20), comprising: temperature increasing means (heater 69 and purge gas line and valve) for increasing a temperature of the portion (62 or 70 or space near 62 or 70) in the case (20) in which the ice is condensed to a melting point of the ice or higher to melt the ice; vaporizing means (rough pump) for vaporizing water generated by melting of the ice by performing rough evacuation to reduce a pressure of the portion (62 or 70 or space near 62 or 70) in which the water is accumulated within a range in which the temperature and the pressure of the portion are prevented from reaching a freezing point of the water, performing buildup determination based on discharged moisture or gas when the evacuation is stopped, and repeating the water vaporization and the buildup determination until the water vanishes away; and evacuation means (also rough pump) for discharging water vapor by further reducing the pressure at a time when the water is

vaporized; wherein the ice, the water, and the water vapor are regenerated (removed from system) in stages such that the ice is melted before the water and the water vapor are regenerated and, after the ice is melted, the water is regenerated before the water vapor is regenerated, and, after the water is regenerated, then the water vapor is regenerated (as the temperature increasing step, vaporizing step and discharging steps are sequential and as H2O inherently changes from a solid to a liquid and then to a vapor when heated; further note that Bartlett explicitly teaches the phase changing of the H2O - column 5, lines 49-54; column 6, line 10-11); and wherein the temperature increasing means is achieved by a purge gas and a heater (column 5, line 25-30).

4. **Claims 1 and 8** are rejected under 35 U.S.C. 102(b) as being anticipated by Brezoczky et al. (US 6,122,921) hereafter Brezoczky.

In regard to claim 1, Brezoczky teaches a water regeneration method for discharging ice condensed in a portion (in 6, or on stages, column 5, line 40) cooled by a cryogenic refrigerator (21) installed in a case (8) to an outside of the case (exterior to 8), comprising: a temperature increasing step (regeneration heat up) for melting the ice (column 2, line 51); a vaporizing step (flashing to gas, column 2, line 54) for vaporizing water; and a discharging step (removed from the pump, column 2, line 54) for discharging water vapor, wherein the ice, the water, and the water vapor are regenerated (removed from system) in stages such that the ice is melted before the water and the water vapor are regenerated and, after the ice is melted, the water is regenerated before the water vapor is regenerated, and, after the water is regenerated,

then the water vapor is regenerated (as the temperature increasing step, vaporizing step and discharging steps are sequential and as H2O inherently changes from a solid to a liquid and then to a vapor when heated;).

In regard to claim 8, Brezoczky teaches that the temperature increasing step (regeneration heat up) is switched to the vaporizing step (gasifying) at a time when a temperature of the portion (in 6 or on stages) of the case (8) in which the ice is condensed reaches the melting point of the ice (as vaporization inherently follows melting).

Response to Arguments

5. Applicant's arguments filed 07/03/2008 have been fully considered but they are not persuasive.

Applicant's arguments are an allegation that the prior art does not teach the amended limitation, that "wherein the ice, the water, and the water vapor are regenerated in stages such that the ice is melted before the water and the water vapor are regenerated and, after the ice is melted, the water is regenerated before the water vapor is regenerated, and, after the water is regenerated, then the water vapor is regenerated". In response to the applicant's arguments, the examiner fully disagrees and directs the applicant to the final rejection above as it is noted that water inherently changes state when heated.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to /John Pettitt/ whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John Pettitt
Examiner
AU 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art Unit 3744

JFP III
October 23, 2008